Salting our Roads and Salting the Environment: A Conference on Road Salt at Cary

by Amy Belotti

The Cary Institute of Ecosystem Studies presented *Road Salt: Impacts to the Environment and Human Health* on Friday, October 16th. Dr. William H. Schlesinger, president of Cary, introduced four experts who spoke on the effects of road salt on the environment, how local governments handle the problem, and ways de-icing might be performed without harming the environment. An e-mail notification had been sent to all surrounding highway departments, inviting them to the conference.

Stuart Findlay, an ecologist at the Cary Institute explained that "we are teetering on the brink of a situation where we need to be ready for serious action but not panicked". He described his study of the Wappinger Creek where he found a steady increase in sodium and chloride during summer and winter months, long after salt applications had ceased. He said the average of chloride content found in Dutchess County water is 80 milligrams per liter, an amount less than the maximum allowed average of 250 mg/L, but it is gaining on an average that can start negatively affecting the area. All soils in Dutchess County have a salt-retaining quality. The salt concentration has been increasing since the 1990's. He explained that "trends are not declining", and the area is close to having sodium chloride's effects become an immediate issue. The effects will be health-related, as well as cost-related. The salt causes corrosion and contamination, a cost that should be factored into the cost of using salt on the roads.

Marie Brule, an engineer from the Dutchess County Department of Health, said the New York State Sanitary Code contains the upper limits of permissible contamination levels. It was noted that sampling rules are more demanding for locations where 25 or more people drink from the water supply. If the concentration of sodium chloride exceeds a level of 250 mg/L, water obtains an unattractive taste and can cause pipe corrosion. Brule suggested ways of preventing negative effects of sodium chloride, such as finding a road salt alternative, obtaining well protection, a water filter tap, and blending with another source. She addressed the option of water treatment systems like reverse osmosis and distillation, but noted that such approaches are costly. She also recommended the minimization of water softeners, since they tend to stain water, add iron to it, and produce a discharge of backwash that soaks into the ground. She stated that annual water quality reports are distributed to all New York residents by May 31st.

Paul Feldman M.D. spoke from the medical outlook of sodium chloride. Feldman, of Vassar Medical Center, reminded the audience that salt is a necessary element for humans, and it's essential for the body to create electrical impulses. On average, only two percent of human salt intake comes from drinks. Therefore, salt in water has little contribution to diet, even in extreme scenarios. However, salt does affect your health in certain ways: A high-salt diet will increase your risk of heart disease, and a lower salt intake will help with high blood pressure.

Charles Morris, from the Margaret Chase Smith Policy Center at the University of Maine is the Senior Research Associate to the Maine Road-Salt Risk Assessment Project, that examines and provides common understanding of road salt's use and effects. Maine has been using salt on the roads since the 1930's, and also uses winter sand, salt brine, chlorides, and acetates. He explained that sand is expensive; it's expensive to buy, hard to transport, and costs more in the long run. Therefore, salt is heavily relied upon. There is a cost to using salt, however. There are increased salts in surface waters in Maine, and Morris explains that the trends can be found in the waters that span from months to decades. The trends tend to be found in the loss of overall diversity, and in an increase in invasive species.

Morris explained that salt's seasonal effects will change to chronic effects in a few decades. The amount of sodium chloride goes up 1.5 mg/L per year, and within 150 years, Maine's contamination limit will be exceeded. The project's results can be compared to other habitats similar to that in Maine. Effects will be seen in nutrient depletion and acidification of water and soil.

Statistics on car accidents were reviewed over a year's span, and for a decade, and Morris was unsurprisingly able to point out that most accidents occur in the winter, when road conditions are difficult. Maine used approximately 490,000 tons of road salt in 2008. Such use of salt comes at a significant price. Morris asked highway departments for any advice to alleviating car accidents that might permit using less road salt, and the most consistent answer was to simply slow down.

Morris further described the costly effects of road salt. He spoke about corrosion to vehicles especially highway department vehicles.

There were approximately 125 people in attendance, 80 percent of whom were highway employees from towns and counties, including Dutchess, Ulster and Putnam.

We later learned that NY State does not mix sand with salt – it uses 100% salt because it's cheaper. According to Stan Whitehead of Amenia, who was at the conference, Amenia uses four parts sand to one part salt. He recognizes that salt is a hot topic.